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Operational and Mission Highlights

A MONTHLY SUMMARY OF TOP ACHIEVEMENTS

December 2021

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B61-12 Bomb Achieves Major Milestone

On November 23, a major milestone was achieved with the delivery of the first production unit (FPU) of the B61-12 — the refurbished bomb is on track for full-scale production starting on May 2022. The FPU was built at the Pantex Plant near Amarillo, Texas.

The bomb has been undergoing a life-extension program for more than 10 years. Los Alamos and Sandia national laboratories are the design agencies for the project, with Los Alamos also being responsible for producing detonators and other components.

For the Laboratory, reaching this milestone on time required overcoming significant technical and programmatic challenges in the design and qualification of the B61-12 nuclear explosive package and supporting components to meet the enhanced performance and safety requirements of the modernized system.

Critical Experiment Completed in Support of PF-4 Aqueous Chloride Operations

During December 2021, significant criticality experiments were completed in a measurement campaign held at DOE's National Criticality Experiments Research Center (NCERC) at the Nevada National Security Site. The results will provide impactful input towards enhanced aqueous chloride processing criticality safety evaluations.

Measurements were collected in three unique critical experiments investigating the effects of chlorine interstitial material in a critical reactor system. Aqueous chloride operations at the Laboratory's Plutonium Facility (PF-4) serve the crucial role of recovering plutonium from pyrochemistry salt residues and other processes — such recovery is necessary for the pit-manufacturing mission. Current criticality safety limits for aqueous chloride are limited to 520 grams of plutonium in solution; however, the significant quantities of chlorine in solution, known by differential measurements to have high neutron capture, are not included in the criticality safety evaluations.

These impactful measurements will provide the technical justification to include chlorine in these criticality safety evaluations, thus providing for increased mass limits. The vital experiments were a collabora-

tion among many different Laboratory divisions and groups.

Hydrotest 3690 Interrupted by Leak, with Fast Response and Safe Operations Underway at DARHT

On November 2, 2021, a failed component and water intrusion into Axis II interrupted hydrotest 3690 (a shot that tests a B-61 warhead) taking place at the Laboratory's Dual Axis Radiographic Hydrodynamic Test (DARHT) facility. Members of Integrated Weapons Experiments (J Division) responded swiftly and safely, restoring Axis II within a week.

Workers performed a standard early morning inspection of the beam lines before run-up for pre-shot radiography, and they found standing water below the Axis II accelerator. A mechanical team member identified the problem, assessed hazards, turned off the water supply, and called for support. Electrical safety officers determined the area safe from electrical hazards, and a team of subject-matter experts determined troubleshooting steps and began failure analysis.

Experts identified the source of the leak coming from the Extended Intercell #3 (EIC-3) downstream steering solenoid magnet. The Axis II beamline was vented to atmosphere and EIC-3 was removed to assess any other damage and determine whether an easy fix existed. Unfortunately, there is no easy fix, but it was determined that the solenoid is usable with degraded cooling (75% design cooling available).

EIC-3 was then returned onto the beamline. Further analysis will be required in the coming weeks to determine the cause, most likely the failure of a mechanical joint inside the heat exchanger. The beam has moved slightly, so it must be fine-tuned in the coming days, a process already underway. Personnel have rescheduled the shot for the week of December 13, 2021.

J Division responded to the concern with an "all hands on deck" approach, demonstrating close coordination, high expertise, and safe operations. Throughout the process, the team's dedication, their ability to minimize the impact to operations, and their high level of performance and positive results remains noteworthy. Facility/equipment upgrades could help prevent similar events (and experiment delays) in the future.

New Plutonium Missions Website Launched to Support Recruitment

The Laboratory recently launched a new website to support recruitment and hiring for jobs in all plutonium mission fields. The website, located at [plutonium-missions.lanl.jobs](#) {url does not work}, was developed by an outside agency to support unique functionality, with content and design driven by team members in the Communications and External Affairs Division alongside key stakeholders in the Associate Laboratory Directorate for Weapons Production (ALDWP) and the Human Resources Division.

The recruiting webpage is being paired with robust online advertising to increase positive online impressions for potential recruits. Online advertising is one of the many recruiting tools the Laboratory has implemented to increase the level of hiring in support of expanding plutonium missions. The project required significant collaboration among a variety of organizations within the Laboratory and will serve as a key tool for mission-oriented recruitment across ALDWP and the Associate Laboratory Directorate for Plutonium Infrastructure.

Pit Technologies Resumes Casting and Demonstrates Increased Capability

The Pit Technologies (PT) Division's Foundry and Logistics Group (PT-4) at the Laboratory has resumed casting efforts, thanks to the completion of the following two processes: (1) re-establishing negative-pressure-circulating chilled water (NPCCW), and (2) finishing the October 2021 nuclear materials control and accountability (NMCA) inventory.

During the week of November 15, 2021, PT-4 group members completed two shape castings. To complete such important work, the PT-4 team performed dry runs before inventory release to ensure the operability of process equipment.

The team also successfully performed aliquot and shape casting on the same day, thereby enabling team members to produce two shape castings in just one week. Thanks to the PT-4 foundry teams for their dedication, preparation, and for continued training and qualification of operators.

Plutonium Infrastructure Directorate Exceeds Construction Performance Against Scheduled Goal

Since its establishment in June 2021, the Laboratory's Plutonium Infrastructure Directorate (ALDPI) has consistently exceeded performance-against-schedule (PAS) goals associated with construction execution within the Plutonium Facility (PF-4). In October and November 2021, ALDPI's construction execution team surpassed 80 percent PAS, the steady-state average goal set for achievement in March 2022. This exceedance demonstrates that ALDPI has already exceeded expectations and is working towards mission execution.

Starting at an execution level of 39 percent for weekly PF-4 construction work activities, ALDPI set PAS goals of 50 percent for July, 60 percent for August, and 70 percent for September. Applying improved planning and execution has enabled ALDPI to exceed goals for all three months: 57.1 percent for July, 69 percent for August, and 75.2 percent for September. October saw 84 percent performance, while ALDPI achieved 83 percent PAS in November.

In the First Quarter of FY22, ALDPI's focus has established the additional goal of raising the number of construction job activities accomplished by 35 percent by the end of Second Quarter FY22.

Plutonium Pit Production D&D Subproject Receives CD-2/3 Approval

On November 18, 2021, the Los Alamos Plutonium Pit Production Project (LAP4) decontamination and decommissioning (D&D) subproject received NNSA Administrator approval of Critical Decision 2/3. This approval authorizes the Laboratory's Plutonium Infrastructure Directorate to begin D&D with more than \$500 million in mission-critical work to clear the footprint to subsequently install new equipment, including gloveboxes in the Plutonium Facility (PF-4).

The Laboratory's largest plutonium infrastructure line-item project, LAP4 enables the mission to manufacture at least 30-pits-per-year by 2026 through design, construction, readiness, startup, and other processes that require a modernized plutonium infrastructure.

Global Warming, Not Just Drought, Drives Bark Beetles to Kill More Ponderosa Pines

New research by Laboratory and partner institutions has discovered that western pine beetle infestations — amped up by global warming in California's Sierra Nevada — kill 30 percent more ponderosa pine trees than the beetles do under drought alone. The new super-computer modeling study hints at the grim prospect of future catastrophic tree die-offs and offers insights for mitigating the combined risk of wildfires and insect outbreaks.

Forests represent a crucial buffer against warming climate, and they are often touted as an inexpensive mitigation strategy against climate change. This research shows that warming shortens the time between beetle generations, thus supercharging beetle population growth that can spur mortality in forest systems during drought in the Sierra Nevada and throughout the Western United States.

In the recently published study in *Global Change Biology*, researchers developed a new modeling framework to assess the risk western pine beetles, or bark beetles, pose in many forest ecosystems under climate change. If the effects of compromised tree defenses (15 to 20 percent) and increased bark beetle populations (20 percent) are additive, the team determined that 35 to 40 percent more ponderosa pines would die from beetle attacks for each increased degree Celsius of warming.

Laboratory-Prepared Document Recognized as “Best Paper” at ISAV Workshop

Co-authored by Laboratory researchers from the Computer, Computational, and Statistical Sciences (CCS) Division and the Theoretical (T) Division, a paper titled “In Situ Climate Modeling for Analyzing Extreme Weather Events” was recently recognized as “Best Paper” at the In Situ Infrastructures for Enabling Extreme-Scale Analysis and Visualization (ISAV) 2021 workshop.

The paper describes how the researchers developed a new in situ analysis pathway for the Energy Exascale Earth System Model (E3SM), which in part involved the design of a new algorithm that analyzes the impacts of sudden stratospheric warmings (SSWs). These SSWs

can cause extreme cold temperature outbreaks at the surface, resulting in hazardous weather and disrupting many socioeconomic sectors. The researchers detected SSWs, modeled surface-temperature data distributions in situ, and showed that post-hoc analysis using distribution models can predict the consequences of SSWs in the continental United States.

Laboratory Researchers Publish In-Depth Articles on the Trinity Test

On November 16, 2021, Laboratory researchers published two dozen papers in a [special issue](#), titled *The Manhattan Project Nuclear Science and Technology Developments at Los Alamos*, of the journal *Nuclear Technology*.

This issue (volume 207) explores nuclear science at the time of the Trinity Test, and it represents the most in-depth analysis ever completed, with never-before-seen info and data, introduced and organized by Weapons Physics Chief Operating Officer Mark Chadwick.

Nuclear Technology is an international research journal published by the American Nuclear Society (ANS). See journal articles here: <https://www.tandfonline.com/toc/unct20/207/sup1>.

Laboratory Scientists Hosted Students in Low-Energy Nuclear Physics

During the week of October 18, 2021, Scientists from the Laboratory's Los Alamos Neutron Science Center (LANSCE) hosted students from the Center for Excellence in Nuclear Training And University-based Research (CENTAUR), an NNSA Center for Excellence in low-energy nuclear physics. Students interacted with Laboratory scientists in nuclear physics, satellite-based measurements, nuclear reaction theory, nuclear forensics, isotope production, detector development, and computing. Led by Texas A&M University, the CENTAUR collaboration includes Florida State, Washington University in St. Louis, Louisiana State University, University of Washington, and University of Notre Dame.

National Criticality Experiments Research Center Celebrates 10 Years of Operations

The National Criticality Experiments Research Center (NCERC) is celebrating 10 years of operation. Since its move from the Laboratory to Nevada in 2011, NCERC has distinguished itself as the only general-purpose facility of its kind in the United States, as well as one of only a few that remain operational throughout the world. The research center supports work relevant to nuclear stockpile stewardship, nuclear reactor advancements, and global nuclear safeguards.

Over the past decade, NCERC has hosted more than 50 experiments executed using its one-of-a-kind critical assemblies. In addition, approximately 20 radiation test object (RTO) campaigns have taken place at the facility's high bays that, along with various measurement and training activities, total more than 500 days of RTO operations.

To commemorate the center's anniversary, a [special issue](#) of *Nuclear Science and Engineering* features papers that focus on each of the four critical assemblies and one that addresses RTO measurements. The issue documents the work accomplished following NCERC's relocation, placing such work in historical context.

The open-access issue provides a resource to access references for the majority of the work performed over the past decade.

New Mexico LEEP Announces First Cohort Fellows

The New Mexico Lab-Embedded Entrepreneur Program (New Mexico LEEP) announced the three fellows in the program's first cohort, scheduled to launch in January 2022. The program, offered at the Laboratory, provides a two-year fellowship for entrepreneurs focusing on deep tech associated with national security.

"Deep tech" refers to technological solutions to society's biggest issues, including chronic disease, climate change, clean energy, and food production. Deep tech is often pioneered by start-up companies that have the freedom to be innovative but lack the resources to take resultant technologies to the next level. Collaborating with a national laboratory like Los Alamos promises to change that.

The three selected New Mexico LEEP fellows are as follows:

- Kam Wai "Cliff" Chan, OAM Photonics, San Diego, CA: Provide photonic sensing solutions for 3D imaging with applications in autonomous driving, drones, and robotics.
- Srikanth Kodeboyina, Blue Eye Soft, Greenville, SC: Build artificial intelligence models that predict satellite anomalies caused by space weather events.
- Kristina Trujillo, TNeuroPharma, Albuquerque, NM: Detect and deter Alzheimer's Disease via an application of radiation-based health-care research.

A total of 35 innovators applied for the program following a national solicitation. The selection process consisted of rigorous evaluations from industry experts, investors, and scientists. New Mexico LEEP is operated by the Los Alamos Commerce and Development Corporation, which helps the fellows relocate to northern New Mexico for two years to participate in the experience.

Supersmart Space-Borne Sensors Take Flight

Two advanced nuclear detonation (NuDet) detection payloads — designed and developed at the Laboratory — launched on December 7, 2021, from Cape Canaveral, Florida, aboard the Department of Defense Space Test Program Satellite Six (STPSat-6).

The Space and Atmospheric Burst Reporting System (SABRS-3) payload will sustain national security detection needs for high-altitude and space nuclear detonations. The Space and Endo-Atmospheric NuDet Surveillance Experimentation and Risk-Reduction (SENSOR) payload will provide an experimental demonstration testbed for advanced technologies for future NuDet detection systems.

Once three weeks of tests are complete, the Laboratory team will activate their payloads and begin uploading pre-scripted commands for on-orbit testing. If all is successful, the Laboratory team will hand SABRS-3 over to their Air Force partners for the NuDet detection mission, where SABRS-3 will contribute to mission operations as part of the U.S. NuDet Detection System, which includes previous SABRS payloads already on orbit along with sensing payloads aboard global positioning system (GPS) satellites.

According to Keith Mashburn (Space Science & Applications, ISR-1), who is the instrument manager for SA-BRS-3 and the integration and test lead for the SENSER payloads, the effort to get these payloads ready for launch took extra determination. Such determination was necessary, given the COVID-19 pandemic and the need to travel back and forth to the spacecraft host's facility in Virginia for months in 2020 to integrate the instruments into the spacecraft.

The SENSER payload suite is a collaboration between Los Alamos and Sandia national laboratories, sponsored by NNSA as part of the DoD Space Test Program.

MISSION OPERATIONS

ALT941 Program Diamond Stamps and Maintains Steady Delivery of Products

In October 2021, first diamond-stamped ALT941 component shipment was successfully sent to the Kansas City National Security Complex. The third diamond-stamped shipment went out this week.

Components in the December shipment were from two separate diamond-stamping sessions on Dec. 6 and Dec. 9, 2021, respectively. Completing two diamond stampings in one week is a testament to the quality of the submittal (product data package and the product itself), increased capacity of product verification and submittal, and collaboration with the field office to help meet production deliverables.

These submittals are among the first certified by newly qualified product verifiers. These products also represent the first diamond-stamped products manufactured and sold out of the newly opened Mark Quality Manufacturing Center at the Prototype Fabrication facility, and they are in support of the requirements for the B61-12 life-extension program. The two shipments put the ALT 941 components ahead of the integrated contractor order schedule.

ASM Receives NNSA Approval for its FY22 Small-Business Goals

Iralien Sainvilmar, the NNSA Los Alamos Field Office's contracting officer, has approved the FY22 small-business goals for the Laboratory's Acquisition Services Management (ASM) Division. Every year, management and operating contractors must submit their proposed

small-business contracting goals to NNSA for approval. The Laboratory understands the importance of ensuring that these goals are met, and thus it has various initiatives in place to help increase subcontracting opportunities for small businesses. Laboratory goals are among the highest in the DOE Complex. The approved FY22 small-business goals are as follows:

- Overall Small Business Goal – 64.5%
- Service-Disabled Business – 24.0%
- Women-Owned Small Business – 14.0%
- HUBZONE Small Business – 4.0%
- Veteran-Owned Small Business – 6.25%
- Service-Disabled Small Business – 3.72%

The Laboratory also was awarded, on its first attempt, full compliance in all five practices of the new (to the Lab) Asset Management System chapter. Practices focused on the Laboratory's asset management policy, asset management objectives, asset inventory, asset condition, and asset inspection schedule. The Lab will share these model practices as references to accredited agencies within the American Public Works Association.

Capital Projects, Plutonium Infrastructure Collaborate to Offer 413.3B Training Resources

The Laboratory's Capital Projects and Plutonium Infrastructure directorates have formed a new collaborative team to offer project managers comprehensive training. This training is designed to improve management's knowledge of DOE Order (O) 413.3B, Program and Project Management for the Acquisition of Capital Assets. A two-day course, Project Management for Line Item Capital Projects is the first in the series and serves as an introduction to DOE O 413.3B and LANL Project Management AP 350 101-501 series.

The training curriculum is available on the Laboratory's internal website and is designed to bring project managers real project lessons learned on challenges and best practices. The next session will be held in late January or early February, 2022.

Hundreds of ALDWP Employees Engage in Conduct of Operations Training

In early November 2021, operations employees across the Associate Laboratory Directorate for Weapons Production (ALDWP), including workers at TA-55, attended a full-day immersive training. At this training, employees acquired a fresh awareness of what it really means to pursue healthy conduct of operations (ConOps).

Led by Joe Estey, a longtime trainer in the commercial nuclear industry, the training engaged employees in a new way to understand the four Cs of ConOps: culture, compliance, communications, and continuous improvement, all of which line up directly with Laboratory values and behaviors.

Hundreds of employees attended over the course of a week, and ALDWP management and training teams are already scheduling more sessions of the training with Estey. As new employees come on, there will be a quarterly opportunity for them to take the training, so that all employees can come to ConOps with a new sense of commitment to safety in support of the national security mission.

Increasing Operational Flexibility and Product Sales in Actinide Operations

Employees at the Laboratory's Plutonium Facility (PF-4) recently completed the Implementation Verification Review (IVR). Designed to implement a new material at risk (MAR) LCO (3.7.1.5), the IVR enables storage of Radioisotope Thermoelectric Generators (RTGs) in two specific basement safes.

Personnel conducted a review of the MAR limit for the PF-4 basement, and they determined that RTGs could be stored in two specific safes located in the basement. Such storage would support both the Laboratory's missions in defense production and stockpile surveillance. By implementing this change, Laboratory personnel can now control their exposure to radiation while enabling operations to continue moving forward. This effort was implemented on November 16, 2021, upon completing the final verification of the MAR Tracker.

A concurrent effort involved the process of Diamond Stamping (no quality-assurance defect reports) a production of Heat Source Final Assembly (HSFA) parts — these parts met all the necessary criteria in support of

the defense production missions under the Associate Laboratory Directorate for Weapons Production.

Sales with zero defects provide confidence to Laboratory customers that the production organizations make high-quality products to support important national security and space missions. Before this sale, the last production lot of HSFA's were Diamond Stamped on July 16, 2020.

Laboratory's Acquisition Services Management Division Receives DOE Approval for New Mentor-Protégé Agreement

Mentor-Protégé Program Manager Mark Lochbaum of DOE's Office of Small and Disadvantaged Business Utilization has approved the Mentor-Protégé Agreement between Triad National Security, LLC (Triad), and Northern New Mexico College [NNMC, a Minority Educational Institution (MEI)]. This is the first time an MEI has participated in the Laboratory's Mentor Protégé Program (MPP).

The MPP enables the Laboratory to formally mentor and build NNMC's capabilities while working toward Triad's small-business subcontracting plan (as per Section J, Appendix E of the Prime Contract). The MPP also provides an innovative strategy to improve Laboratory operations by initiating a strategic framework around regional workforce resourcing.

Laboratory's New Traffic News Hub Consolidates Updates on Road Work so Employees Can Plan Commute, Arrive Safely

On December 9, 2021, the Laboratory launched the [Traffic News Hub](#) webpage to better inform employees of road improvements, detours, and traffic delays at the Lab and in the surrounding region.

The Traffic News Hub consolidates announcements and updates on relevant roadwork into a one-stop commuting resource. As the Laboratory continues to improve its infrastructure, the webpage will assist the Lab's growing workforce to plan their commutes to work and home, enabling all employees to arrive safely at their destination.

To access the latest updates, go to the webpage and click on the icon of a blue car, which is at the top of the LANLInside homepage next to the Fire Danger Rating.

The Traffic News Hub also features links to the [Parking at LANL](#) and [Utilities and Infrastructure](#) homepages, as well as access to Los Alamos County's [MyDrive](#) page. The Laboratory's [driveit.lanl.gov](#) and the county's MyDrive page provide real-time information on traffic situations at major intersections throughout Los Alamos and White Rock.

Laboratory's PT-1 Group Put Safety First and Paused Work

Employees in the Pit Technologies Metal Production Group (PT-1) paused work after a miscommunication took place during glove changes at the Plutonium Facility (PF-4). A PT-1 team used the "everyone is responsible for safe work" principle from the Safe Conduct of Research (SCoR) to address the miscommunication.

During the week of December 6, 2021, work was paused after employees heard conflicting information about whether they could be in the room during the glove-change process. As a result, employees were instructed to doff their level 2 anti-Cs (Tyvek suits) and survey out of the 400-area management room. After a momentary pause to address the questions, the team was still onboard to continue, but then the team members realized that there were not enough Tyvek suits for everyone. At that point, the team called the job, with work rescheduled and later completed safely and according to plan.

Laboratory Sends to NNSA its Site Sustainability Plan, which Will Continue to Invest in Efficiency

In early December 2021, the Laboratory submitted its annual Site Sustainability Plan to NNSA. This plan focuses on three primary objectives: making targeted investments that improve efficiency and resource use, transparently tracking progress through metrics, and engaging employees and programs at all levels in the organization.

The Laboratory has made significant improvements in energy efficiency. In FY21, the Lab spent \$2.5 million to conduct efficiency improvements site-wide, including LED installations, steam pit insulation, and Building Automation Systems (BAS) design and installations.

BAS monitors energy use over time, integrates fault detection, and uses night-setback settings.

The goals and initiatives in the Laboratory's Site Sustainability Plan align with the Executive Order on Tackling the Climate Crisis at Home and Abroad. The executive order sets requirements to achieve net-zero carbon emissions by 2050. Laboratory staff members are developing a Net-Zero Carbon Emissions Plan that examines the following major carbon emissions sources: electrical energy, heating energy, and transportation energy. Low risk, near-term investments are being identified, and cost impacts are detailed.

The Laboratory's Site Sustainability Plan includes information requested regarding the executive order and the Energy Act of 2020, as well as actions outlined in DOE's 2021 Climate Adaptation and Resilience Plan.

M-8's FY21 Record Production Year Coincides with New Machines and Building Upgrades

The Laboratory's High Explosive (HE) Fabrication and Disposition group (M-8) experienced a record production year in FY21, pressing 4,692 pounds of HE material and machining 2,683 HE and mock HE parts — the highest number made at the Lab in the recent past and triple the parts made in 2015. At the burn grounds, M-8 treated and recycled about 130,000 pounds of HE-contaminated metal. At the wastewater treatment facility (which evaporates HE-contaminated wastewater), M-8 processed about 15,000 gallons of HE-contaminated water. In FY21, M-8's overall activity and production level were higher than ever — despite the COVID-19 pandemic.

M-8 personnel also recently completed a five-year project to upgrade its old machines with modern ones, collaborating with Pantex on machine design. Now, 11 new machines have been installed, with nine of them approved for HE operations. The new machines will help Laboratory scientists pursue ever-more-precise HE machining among ever-more-demanding requirements.

In addition, M-8's building (16-0260) now has new blast waveguide walls, perpendicular to the main walls. These new walls were fabricated onsite and installed outside the building to guide potential shock waves away from the building, keeping accidental hazards in one bay from affecting neighboring bays. The waveguide walls create a safer work area for employees,

and they also increase capacity, enabling work to occur in bays side-by-side simultaneously (this consolidation was previously prohibited because of safety concerns).

The building has new paint, lights, flooring, and organizing bins and lockers (improving housekeeping and organization throughout the facility). The cleaner, upgraded facility and equipment boosts safety, machining capability, and worker morale.

Modern, Modular Building New Home for Weapons Staff

Construction on the Ivy Castle Building, which houses 120 Weapons Physics and Engineering employees, was completed — under budget — in November 2021. On December 8, 2021, a ribbon-cutting event was held to celebrate its completion. In January 2022, employees will move in to the new facility, located “behind the fence” near the Nuclear Security Sciences Building.

A two-story, 22,700 square-foot modular structure, the Ivy Castle Building is one of several of this type under construction at the Laboratory. With modular buildings, the pieces are fabricated off-site — in this case, Texas — and then shipped to the construction site, where they are assembled and finished to meet the specifications of the programs they support.

Scientists and engineers will have a modern space in which employees can hold discussions and interactions essential to solving the complex, interdisciplinary challenges they tackle each day. Ivy Castle adds an important piece of infrastructure to the campus in support of the Laboratory and its growing mission.

The building’s name comes from two historical references: Ivy is the 1952 nuclear test operation where the Laboratory first demonstrated the principle of a hydrogen bomb, and Castle is the 1954 operation where the Lab first demonstrated the principle of practical, deliverable hydrogen bombs.

New Parking Garage Opens in Laboratory Technical Area that Supports Growing Weapons Mission

To support a growing mission and an expanding workforce, the Laboratory on December 13, 2021, opened a new three-story parking structure. The structure is located along the Pajarito Corridor, an area where the

Laboratory’s pit production — and other Weapons mission work — takes place.

The new Pecos Parking Garage has room for 450 vehicles, including nine charging stations for electric vehicles and nine spaces designated in accordance with the Americans with Disabilities Act. Employees who ride motorcycles to work also have several spaces allotted to them in the new garage.

In all, this new parking structure, along with the new parking garage completed earlier this summer near the Lab’s main administration building, have added about 900 parking spaces to the Lab’s campus. Both parking additions represent major accomplishments in the Lab’s efforts to update and transform the campus infrastructure to meet mission goals.

The project’s culmination represented a tremendous team effort by several Laboratory divisions and groups, including the following:

- Capital Projects Directorate
- Infrastructure Program Office
- Facility Operations Division
- Acquisition Services Management Division
- Engineering Services Division
- Craft workforce
- Environment, Safety, Health, Quality, Safeguards and Security Directorate
- Subcontractor Jaynes Corporation

Nuclear Material Inventory Hits Target Time for Completion

Having been implemented on October 20, 2021, the TA-55 October 2021 Physical Inventory (PI) officially closed on November 30, 2021. Nine of eleven Material Balance Areas (MBAs) were released back into production within 17 business days, meeting a four-week goal for closure based on the 4/10 work schedule.

The last couple of MBAs were released nine workdays later (again based on the 4/10 work schedule). The agreed-upon target-closure date between the Safeguards Division Nuclear Material Control & Accountability program (SAFE-NMCA) and Weapons Production was established in December 2020 to improve inventory cycle-time performance without sacrificing NMCA inventory standards.

Once performance is sustained (based on process improvements) and target dates are repeatedly met, the

overall goal with each inventory cycle is to set a new, lower target date. The eventual goal is to perform a two-week inventory for the next few years.

Physical inventories, in conjunction with other SAFE-NMCA program elements, ensure accountable nuclear material is not missing. The process also detects and resolves discrepancies between the PI and the Laboratory's accountability system records.

Given that production is paused during inventory, a shorter inventory period means more production time for Plutonium Facility (PF-4) operating groups, resulting in significant cost savings. Since the fall of 2020, SAFE-NMCA and Weapons Production have focused on increased planning, collaboration, and communication, all of which are based on inventory lessons learned. These deliberate, self-reflecting, forward-thinking actions have greatly contributed to shorter inventory periods that go from months to weeks.

The Red Team Awarded Major Infrastructure Contracts at the Laboratory

Acquisition Services Management (ASM) has developed a strong and productive working relationship with The Red Team (TRT), LLC — a Service-Disabled Veteran-Owned Small Business — via the Laboratory's Mentor-Protégé Program. In turn, TRT is contributing to several major infrastructure projects at the Laboratory, resulting in significant cost savings for the Lab.

Among their projects, TRT received a major contract award for the temporary PF-3 modular bathroom and locker room facility, which is the first phase of a building renovation at TA-55. Future TRT contract awards include the TA-35 (Glados) renovation project, as well as the weapons warehouse project (the first of between four and 15 future weapons warehouse awards). The estimated cost savings for these awards is more than \$1.2 million.

ASM mentors TRT in both technical areas and business development. For example, ASM assisted TRT in formatting and producing proper, quality technical proposals. Moreover, ASM has dedicated many hours to educating TRT on business practices associated with Triad National Security, LLC, and government in general. TRT has reported that ASM's mentoring on improving their technical proposals has proved beneficial.

Scanning Completed for Radiochemical Detector Data for All LANL and LLNL Historic Above-Ground and Underground Events

During the past year, Los Alamos National Laboratory added more than 3,549 documents to the digital archive, fully digitizing all radiochemical detector information in all shot folders from Los Alamos (LANL) and Lawrence Livermore (LLNL) national laboratories. LANL finished scanning all radiochemical detector data for every LANL and LLNL underground testing (UGT) event, including 1,375 reports, 1,518 memos, 408 notes, and 248 blueprints. This data will be entered in a database that can be used to access approved Radchem Data for incorporation in the weapons program workflow. Historic UGT data are used by LANL and the nuclear weapons complex to benchmark and verify codes.

Successful Collaboration Enables Completion of Detonator Shipment

A shipment of a 1E40 detonator cable assembly sub-lot to Pantex was completed during the week of December 5, 2021. This work was completed as a collaborative effort among the following Laboratory organizations: Detonator Production (DP) groups, Production Agency Quality, and Associate Laboratory Directorate for Weapons group E-5 (Experimental Device Engineering and Assembly).

DP and E-5 have been collaborating on multiple opportunities, and this shipment highlights one of these efforts. E-5 coordinated resources for the shipment based on standards for the 1E40 program; quality teams worked to ensure the shipment met all quality needs; and the smallest detail for the shipment was overseen until it left the dock to its final destination. This effort reveals successful collaboration across groups, divisions, and directorates within the Weapons Program in support of stockpile stewardship.

Transuranic Waste Facility Streamlines and Strategizes Drum Storage

In late November 2021, employees at the Transuranic Waste Facility (TWF) developed and implemented a new systematic approach to drum storage and identification. The change was employee-initiated and was in

response to recent occurrences of moving drums that were not yet ready for shipment.

To be more productive and to practice ALARA (radiation exposure as low as reasonably achievable), TWF employees strategized and implement a new way of doing things. The TWF team collected the information needed to understand and characterize the drums in storage, created spreadsheets by building with detailed location information, and implemented the building reorganization (moving drums to their new locations based on this system) within two weeks.

As a result of this work, drums meant to be in long term storage are now placed in a separate area from drums ready for shipment, making the latter more accessible and visibly clear on where each drum belongs. This reorganization will assist the team with identifying drums, moving drums, and the documentation that follows the job to be more efficient and maintaining the practice of ALARA and good conduct of operations.

Triad and Craft Unions Collaborate to Secure Continued Growth and Partnership

On December 2, 2021, the Laboratory and 12 craft unions signed collective-bargaining agreements, thereby completing negotiations between Triad National Security, LLC, and the craft unions. These resultant contracts represent approximately 1,200 Laboratory craft employees in the Logistics Division, including electricians, pipefitters, mechanics, sheet-metal workers, operators, ironworkers, painters, carpenters, roofers, laborers, teamsters, insulators, and masons.

Taking place every five years, craft collective-bargaining negotiations involve an immense amount of collaboration among several areas within the Lab, as well as among the unions. The process began in the summer of 2021; the new contracts go into effect in July 2022, effective through June 2027.

Given the Laboratory's expanded mission, its growing infrastructure needs, and the shortage of craft workers nationwide, securing the Laboratory's craft workforce is of critical importance. The craft workforce plays an essential role in supporting the Laboratory's facility and infrastructure maintenance, construction projects, and site-wide support operations, all of which ensure the success of every mission carried out at the Laboratory.

COMMUNITY RELATIONS

Laboratory's Holiday Giving Campaign Raises \$2.7 Million to Support Nonprofits, Students, and People in Need

As part of the Laboratory's 2021 Holiday Giving Campaign, employees donated more than \$2.7 million to make things a little brighter for communities in northern New Mexico and beyond this holiday season. One of the many highlights this year was the 627 employees who donated or volunteered for the first time during the campaign. Pledges and gifts from all employees included the following:

- \$2.25 million to nonprofit organizations,
- \$363,000 to the Los Alamos Employees' Scholarship Fund to provide scholarships for students from northern New Mexico,
- 1,276 gift kits for young people and senior citizens in need,
- \$12,000 to The Food Depot to fight food insecurity across the region, and
- many hundreds of winter hats, gloves, and socks.

Laboratory operator Triad National Security, LLC, will match a portion of each employee's giving to charitable 501(c)(3) nonprofits based in the seven counties in which the majority of Laboratory employees reside (Los Alamos, Rio Arriba, Santa Fe, Taos, San Miguel, Mora, and Sandoval), as well as in Eddy County, where the Lab also has a presence. This year's match will be \$0.50 on the dollar, providing more support to nonprofits in the Laboratory's region.

New Los Alamos Program Supports Opportunities in Physics for Indigenous Women

In collaboration with Fort Lewis College, the Laboratory has implemented a newly funded program that supports undergraduate indigenous women interested in careers in physics. Offered to two women per year majoring in physics at Fort Lewis College, the program aims to build a pipeline of talent from the undergraduate level in the Four Corners region to graduate programs and eventual careers in physics, including positions at national laboratories such as Los Alamos.

Indigenous women are the most underrepresented group in physics degree completion and careers, yet Los Alamos is in a region where the demographics are heavily Native American. This program aims to attract more indigenous women to this important scientific field.

The first cohort of this program consists of two program participants:

- Julie Nelson, a senior at Fort Lewis College, is an engineering and math major with an emphasis in physics. She is a member of the Cheyenne River Sioux Tribe.
- Arielle Platero, a junior at Fort Lewis College, is also an engineering and math major with an emphasis in physics. She is a member of the Navajo Nation.

The students will receive year-round mentoring from Laboratory physicists in the course of their education at Fort Lewis College. The program includes a ten-week internship in the Laboratory, as well as a two-week visit to CERN, the European Council for Nuclear Research. Students will also have the opportunity to participate in the American Indian Resource Group, which promotes access to Native American resources and a sense of community and inclusion while learning about high-energy nuclear physics at the Laboratory.

This program received significant media coverage, including stories in [Indian Country Today](#), the [Durango Herald](#), [KRQE-TV](#), and [KOB-TV](#). Stories are also forthcoming in the [Albuquerque Journal](#) and the [Navajo Times](#).

New Outreach Program Connects Communities with Laboratory Careers

In December 2021, Laboratory leaders and Los Alamos County partners celebrated the launch of the Lab's new Challenge Tomorrow program. At this launch, guests previewed hands-on elements of this program, such as the glovebox and a block-stacking manipulator arm. In early 2022, the program, which features two themed mobile trailers, will travel to schools, fairs, and recruitment events throughout the state. Providing an interactive "Lab-on-wheels" experience, the program encourages the public to learn about the range of the Laboratory's research and career opportunities.

An initiative spearheaded by the Community Partnerships Office, Challenge Tomorrow was developed by a core team at the Bradbury Science Museum. The effort

took nearly two years, with team members working throughout the pandemic lockdown. The organizers modeled the program off a successful traveling program at Oak Ridge National Laboratory.

Although the target audience for this program consists of middle- and high-school students, it is also open to visitors of all ages. In each trailer, visitors will be able to explore different areas of the Lab's ongoing work, demystifying what the remote Laboratory does on "The Hill." Topics covered include an investigation of quantum dots, the tech behind the Mars rover, environmental research, and more. Visitors will also interact with Challenge Tomorrow Ambassadors.

Public Town Hall Covers Pits, Construction, and the Laboratory's Community Work

On December 1, 2021, Laboratory Director Thom Mason held a public town hall that kicked off with updates on the state of the Laboratory, followed by a Q&A session that addressed 25 questions from community members.

Mason's initial presentation covered Laboratory statistics, such as hires, average salary, procurements, and budget in FY21. He also weighed in on policies such as mandatory vaccination, planned changes to the Laboratory's infrastructure, and community-focused programs.

The Q&A portion of the event featured questions that many community members and stakeholders had asked, including queries about the pit mission, commercial renting, housing in Los Alamos, and efforts to reduce carbon emissions.

Santa Fe New Mexican Names Mark Galassi as One of 10 Who Made a Difference

The *Santa Fe New Mexican* has named Laboratory astrophysicist Mark Galassi of Space Science & Applications (ISR-1) as one of the 2021 recipients of the 10 Who Made a Difference Awards for his educational outreach activities. Galassi's [profile](#) appeared in the newspaper on November 30, 2021.

Since 1985, the *Santa Fe New Mexican* has published a holiday series "recognizing people from throughout

Northern New Mexico whose selfless and tireless volunteer work has bolstered their communities.”

Winner of the inaugural LANL Community Relations Medal this year, Galassi has developed a unique pipeline that takes students from disadvantaged backgrounds participating in elementary school chess clubs through to college internships. In these internships, these students work with scientist mentors who help the students land their first jobs in science.

In part through his nonprofit, the [Institute for Computing in Research](#), Galassi has helped more than 350 students across northern New Mexico. Students from the early years of his pipeline are now professors at major research universities and have founded successful companies in machine learning and cybersecurity.

SELECTED MEDIA COVERAGE

[Global Warming, Not Just Drought, Drives Bark Beetles To Kill More Ponderosa Pines](#)

DWEB News (11/23)

Using Los Alamos supercomputers, the team modeled bark beetle dynamics and tree die-off during the extreme drought of 2012–2015 and earlier periods. They then analyzed the results by using field observations of maximum temperature and precipitation, tree density and tree mortality. They found that the production of new offspring was more important than the survival of the winter without cold temperatures.

[New Mexico Waste Plant Receives 13,000th Shipment](#)

KRQE (11/23)

The Waste Isolation Pilot Plant has marked a major milestone. The nuclear waste storage facility near Carlsbad says it brought in its 13,000th shipment of transuranic waste on November 11. The site receives its first shipment from Los Alamos National Lab back in 1999.

[Next in Solar Energy: Super Thin Cells Using Better, Stronger Perovskites](#)

Business Times (11/24)

Rice engineers and collaborators from Purdue and Northwestern universities in the U.S., The Institute of Electronics and Digital Technologies (INSA) in Rennes, France, and the Department of Energy national laboratories Los Alamos, Argonne, and Brookhaven discovered that sunlight effectively shrinks the space between the atoms in certain 2D perovskites, improving their ability to carry a current.

[Californium Complex Offers Bonding Insights](#)

Chemical & Engineering News (11/26)

“We’re really pushing the limits of the smallest scale at which you can do classical synthetic chemistry,” says Andrew Gaunt, a researcher at Los Alamos National Laboratory.

[Omicron Mutations Alarm Scientists, but New Variant First Must Prove it can Outcompete Delta](#)

Washington Post (11/29)

When the variant now known as omicron first appeared on a global database of coronavirus genomic sequences, scientists were stunned. . . “It looks grim, but it needs to be tested and we don’t know how these mutations will act together,” said Bette Korber, a theoretical biologist at Los Alamos National Laboratory.

[Through Chess-to-Computing Program, Mark Galassi Helps Santa Fe Youth with Their Next Move](#)

Santa Fe New Mexican (11/30)

Instead, he became an astrophysicist and computer programmer at Los Alamos National Laboratory, exploring black holes and gamma rays. “In Los Alamos, you solve the big problems,” said Galassi, 56. “The problems that take a decade, a decade and a half to solve.”

[Another Climate Change Threat: Valley Fever](#)

Alta (12/2)

“Much of the western United States...could be endemic to valley fever in the future,” says Los Alamos National Laboratory Earth postdoctoral fellow Dr. Morgan Gorris, whose research demonstrates the impact of different climate scenarios on valley fever.

[‘I Don’t Think We’re Back to Square One.’ Beth Israel Races to Find Out How Much Vaccines Protect Against Omicron](#)

Boston Globe (12/2)

“I’m so sorry to send you [news of] horrible variants just before a holiday,” wrote Bette Korber, who studies the evolutionary changes of SARS-CoV-2, the virus that causes COVID-19. “But it seemed important to get the word out, as these are so very different. The potential of these scare me.”

[LANL Gearing Up to Produce Nuclear Triggers](#)

Santa Fe New Mexican, Scott Wyland (12/2)

Los Alamos National Laboratory is making headway in its goal to produce 30 nuclear bomb cores by 2026 by hiring workers, modernizing the plutonium facility and looking at how to upgrade the area’s transportation system, lab director Thom Mason said in an online forum Thursday evening.

New Mexico Lab-Embedded Entrepreneur Program Announces First Cohort

Los Alamos Reporter (12/2)

The New Mexico Lab-Embedded Entrepreneur Program (New Mexico LEEP) announces the three fellows in the program's first cohort, scheduled to launch in January 2022. The program, offered at Los Alamos National Laboratory, provides a two-year fellowship for entrepreneurs focusing on deep tech for national security.

Program Aims to Help Indigenous Women Get into the World of Physics

KRQE-TV (12/2)

Indigenous women are the most underrepresented group in physics. Los Alamos National Laboratory is trying to change that with a new program aiming to help women and break down stereotypes. The lab is teaming up with Fort Lewis College in Durango to change that.

Finally, a Fusion Reaction has Generated More Energy than Absorbed by the Fuel

Science Alert (12/3)

"Gaining experimental access to thermonuclear burn in the laboratory is the culmination of decades of scientific and technological work stretching across nearly 50 years," said Thomas Mason, director of the Los Alamos National Laboratory.

New Los Alamos Program Supports Opportunities for Indigenous Women in Physics

Indian Country Today (12/3)

A newly funded program at Los Alamos National Laboratory, in collaboration with Fort Lewis College, supports undergraduate Indigenous women interested in a career in physics. Offered to two women per year majoring in physics at Fort Lewis College, the program aims to build a pipeline of talent from the undergraduate level in the Four Corners region to graduate programs and eventual careers in physics, including at national laboratories such as Los Alamos. Also reported in the [Durango Herald](#).

LANL Scientist Aids Hunt for Cancer Cure

Albuquerque Journal (12/5)

A potential melanoma-fighting compound has been discovered in the sea floor near Antarctica by a team that included a scientist from Los Alamos National Laboratory.

New LANL Program Aims to Get More Indigenous Women in Physics

KOB News (12/6)

A new program at Los Alamos National Lab has the goal of getting more Indigenous women in physics.

New Mexico Lab-Embedded Entrepreneur Program Announces First Cohort

Scienmag (12/6)

The New Mexico Lab-Embedded Entrepreneur Program (New Mexico LEEP) announces the three fellows in the program's first cohort, scheduled to launch in January 2022. The program, offered at Los Alamos National Laboratory, provides a two-year fellowship for entrepreneurs focusing on deep tech for national security.

Nuclear Isomers are Key to Astrophysics

Los Alamos Reporter (12/6)

Scientists at Los Alamos National Laboratory are demonstrating the importance of nuclear isomer effects in astrophysics by developing techniques to incorporate all known isomers into astrophysical simulations. They also created a metric to isolate influential isomers and exclude irrelevant ones, facilitating detailed studies of those that affect astrophysical environments without resorting to best guesses.

Simple Quantitative Framework to Understand the Pathogenesis of Severe COVID-19

News Medical (12/6)

Researchers from Los Alamos National Laboratory in the United States developed a model to explain why severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections induce high inflammatory levels. The preprint article appeared on the MedRxiv server.

This Federal Scientist Developed Something You Can't See but Will Help the Electrical Grid

Federal News Network (12/6)

Ensuring resiliency and efficiency of the electrical grid, it's a top national security concern. Keeping the grid top notch will take more than wires. It'll take algorithms. My next guest, a scientist at the Los Alamos National Laboratory, developed an algorithm that won the top prize in a competition, staged by the Advanced Research Project Agency – Energy. Doctor Hassan Hijazi joined the [Federal Drive with Tom Temin](#) to talk about it.

Twelve Labor Unions and Triad National Security Sign Collective Bargaining Agreements

Los Alamos Reporter (12/6)

Twelve labor unions signed their collective bargaining agreements on Dec. 2, completing their negotiations with Triad National Security, which operates Los Alamos National Laboratory.

Global Warming is Causing Bark Beetles to Kill More of the Southwest's Forests

KUNM (12/7)

Drought adds fuel to the Southwest's massive wildfires by killing off swaths of forests. That's been exacerbated over the last decade by bark beetles that attack and kill live trees. Now, a new study shows climate change is accelerating these processes, causing more trees to die faster.

LANL: Robert J. Penn Jr. Honored With American Nuclear Society Service Award

Los Alamos Reporter (12/7)

Robert F. Penn Jr. was recognized with the American Nuclear Society's (ANS) Milton Levenson Distinguished Service Award for his dedication to nuclear science and technology and the society.

Twelve Labor Unions and Triad National Security Sign Collective Bargaining Agreements

Los Alamos Daily Post and Santa Fe Reporter Morning Word (12/7)

Twelve labor unions signed their collective bargaining agreements Dec. 2, completing their negotiations with Triad National Security, which operates Los Alamos National Laboratory (LANL). These contracts represent about 1,200 essential workers in the skilled building trades including electricians, pipefitters, mechanics, sheet metal workers, operators, iron workers, painters, carpenters, roofers, laborers, teamsters, insulators and masons.

Challenge: Tomorrow LANL Traveling Experience Premiers with Ribbon Cutting Ceremony

Los Alamos Reporter (12/8)

There was an air of excitement Tuesday morning at the White Rock Visitor Center as Bradbury Science Museum executive director Linda Deck and Los Alamos National Laboratory Director Thom Mason conducted a ribbon cutting ceremony for two trailers that are part of the "Challenge: Tomorrow LANL Traveling Experience." The two mobile exhibits have been developed to travel around New Mexico to festivals, STEM events, schools and universities.

Physical Properties of Quantum Systems Allow for Faster Simulations

AZO Quantum (12/9)

Recent theoretical breakthroughs have settled two long-standing questions about the viability of simulating quantum systems on future quantum computers, overcoming challenges from complexity analyses to enable more advanced algorithms. Featured in two publications, the work by a quantum team at Los Alam-

os National Laboratory shows that physical properties of quantum systems allow for faster simulation techniques.

Ultrathin Solar Cells Get a Boost — "Efficiencies of Perovskites Have Skyrocketed"

SciTech Daily (12/10)

Using the Advanced Photon Source's ultrabright X-rays, researchers have determined that sunlight itself can improve the efficiency of 2D materials used to collect solar energy.

Breakthrough Proof Clears Path for Quantum AI – Overcoming Threat of "Barren Plateaus"

Focus Technica (12/12)

Convolutional neural networks running on quantum computers have generated significant buzz for their potential to analyze quantum data better than classical computers can. While a fundamental solvability problem known as "barren plateaus" has limited the application of these neural networks for large data sets, new research overcomes that Achilles heel with a rigorous proof that guarantees scalability.

Fast-Forwarding Quantum Evolution: Physical Features Boost the Efficiency of Quantum Simulations

SciTech Daily (12/13)

Recent theoretical breakthroughs have settled two long-standing questions about the viability of simulating quantum systems on future quantum computers, overcoming challenges from complexity analyses to enable more advanced algorithms. Featured in two publications, the work by a quantum team at Los Alamos National Laboratory shows that physical properties of quantum systems allow for faster simulation techniques.

LANL Launches Indigenous Women in Physics Program

Albuquerque Journal (12/13)

The two-year \$195,000 LANL program, launched in mid-November, consists of 10 weeks at the lab and year-round mentoring. It is funded by the Department of Energy. Officials are seeking "to make it a more permanent program," said Astrid Morreale, a researcher in the Particle Physics and Applications group at LANL and a co-leader of the program.

Physical Features Boost the Efficiency of Quantum Simulations

California News Times (12/13)

Recent theoretical advances have solved two long-standing questions about the feasibility of simulating quantum systems in future quantum computers, overcoming the challenges of complexity analysis and

enabling more sophisticated algorithms. Studies by the quantum team at the Los Alamos National Laboratory, featured in two publications, show that the physical properties of quantum systems enable faster simulation techniques.

Multi-Family Developments Outpace Single Family Homes in Santa Fe

Albuquerque Journal (12/14)

During the last three years increased federal funding at Los Alamos National Laboratory and the “lack of housing options in Los Alamos County has led to a growing number of LANL workers buying or renting properties in Santa Fe.”

Texas A&M Leads \$2 Million Traineeship Effort for DOE National Isotope Program

TAMU News (12/14)

Texas A&M will serve as the isotope traineeship coordination (ITC) site in collaboration with a team of 17 institutions — 14 institutions of higher education (eight of which are minority-serving institutions) and three DOE national laboratories (Argonne National Laboratory, Lawrence Livermore National Laboratory and Los Alamos National Laboratory).

New Mexico STEM Challenge Winners Get \$500 a Piece

Las Cruces Sun-News (12/15)

More than 300 students participated in the third annual New Mexico Governor’s STEM Challenge, a competition testing high school students’ ability to use science, technology, engineering and math to solve real-world problems. New Mexico State University hosted the hybrid format 2021 showcase, with the virtual event held Dec. 10 and the in-person event held Dec. 11 at NMSU’s Corbett Center.

Taos High School Science Team Wins at State Competition: Students Win \$5,000 for Project Converting Food Waste into Clean Energy

Taos News (12/15)

The high school team, advised by Taos High teachers Tracy Galligan and Andy Leonard, traveled last Friday (Dec. 10) to compete in the 2021 Governor’s STEM Showcase at New Mexico State University in Las Cruces, where they earned top marks from judges with Los Alamos National Labs for a project that converted cafeteria food waste into sustainable energy.

National Security Magazine Now Has a Podcast

Los Alamos Reporter (12/16)

The National Security Science podcast, a spin-off of the magazine, brings you stories from the Weapons programs at Los Alamos National Laboratory—stories that

show how innovative science and engineering are key to keeping America safe. Or, as we like to say, better science equals better security.

Charting the “Bloody” Brine Flows from an Antarctic Glacier

Eos (12/17)

“I just got to thinking, ‘Wouldn’t it be cool if we knew more about how often this waterfall feature has been active or when it’s been active?’ because it looks so bizarre,” said Chris Carr, a glaciologist at the Los Alamos National Laboratory. She led this project as part of her doctoral thesis at the University of Alaska Fairbanks.

LANL: Using Sparse Data to Predict Lab Quakes

Los Alamos Reporter (12/17)

A machine-learning approach developed for sparse data reliably predicts fault slip in laboratory earthquakes and could be key to predicting fault slip and potentially earthquakes in the field. The research by a Los Alamos National Laboratory team builds on their previous success using data-driven approaches that worked for slow-slip events in earth but came up short on large-scale stick-slip faults that generate relatively little data — but big quakes.

Biden Picks Nuclear Security Vet for NNSA Top Weapons Job

Aiken Standard (12/20)

President Joe Biden last week picked a nuclear engineering professor with a history of work at national security labs to be the next deputy administrator for defense programs at the National Nuclear Security Administration. If confirmed by the Senate, Dr. Marvin Adams would take over the agency’s top weapons job, currently held by Dr. Charles Verdon. Verdon was sworn in during the Trump administration, in October 2018.